

## **2. Alternatives**

### **2.1 Alternative A: Installation of the Solar-Powered Radio Repeater on Rosillo Peak (Preferred Alternative)**

*Preferred Alternative:* The preferred alternative, or proposed action, would involve the installation of a solar-powered radio repeater which would consist of prefabricated metal platforms, with adjustable legs, and commercial components (equipment cabinets, battery boxes, and solar panels) fixed to the platforms (Appendix A, Figure 4). Each platform is minimal in nature, with adjustable leveling legs. The installation would have eight points of contact with the ground. The platforms are open and would allow water and diffuse light to pass through to the ground. The weight of the platforms is sufficient to anchor them to the ground; therefore, no digging or excavation would be performed. No heavy equipment, such as cranes or bulldozers, would be used to install the platforms. The design of the installation allows for sufficient anchoring and does not require that it be permanently affixed in the landscape. The proposed action includes the installation of communications equipment where no previous intrusion has occurred. The equipment would be painted to blend with the background and minimize glare. No lights would be attached to the antennas.

During platform assembly, the area surrounding the platform would be affected as component pieces of equipment are staged on the ground around the platform site until carried to the platform for installation. For this reason, the area affected during initial construction is larger, but short term. The entire assembly area (including the platform footprint) is approximately 600 square feet (20' x 30'). The footprint of the platform (7'x20') is a smaller, negligible effect over the long term. Two antennas, approximately 20 feet in height, would be mounted within the 140 square foot platform site (Appendix A, Figure 4). The only potential invasive disturbance would be the installation of a lightning rod to electrically ground the equipment. This rod would be located within the 140 square foot area, and be placed at a depth no more than 12 inches below ground surface.

A foot traffic corridor between the platform site and helicopter landing site, used during installation and setup of the repeater system, and during subsequent maintenance and repair operations, would be 330 feet long by 25 feet wide (8,400 square feet). To avoid an entrenched trail from forming due to foot traffic, staff would not follow the same path each time. A corridor width of 25 feet includes the maximum variability under consideration. During installation and assembly activities, the area of short term impact of rotor wash at the helicopter landing site is estimated to be 1,500 square feet. The area of long term impact of rotor wash at the helicopter landing site for subsequent maintenance trips is estimated to be approximately 950 square feet. "Rotor wash" is produced by the rotor blades and consists of a downdraft at least as large as the entire rotor diameter. The impact of the helicopter is limited to the initial trip to the site to install the equipment and subsequent quarterly maintenance trips. Maintenance trips to the site would be limited to a maximum of four per year, except for emergencies. No access roads, utility lines or permanent helipad would be constructed. An optimum landing site would be located and identified by a GPS coordinate. The landing site would be marked with flat paving stones in the shape of an "X" or "H." The helicopter would not be allowed to land on the Peak except at the designated landing site. If weather conditions or other factors prevent the helicopter from landing at the designated site, no landing attempt would be made at any other location on the Peak.

A potential impact area of 10,500 square feet (0.24 acres) includes the initial short-term impact during transport, staging, and assembly of the equipment platform, as well as a subsequent, long term impact for repeated maintenance visits to the repeater site.

*Discussion:* According to radio coverage tests conducted by the DHS, the proposed site meets the communication coverage needed by all agencies involved in the proposed action. (See

Coverage Map 1, Appendix B) This site also meets the objective to reduce "blind spots" that exist with the current radio repeater on Emory Peak (See Coverage Map 2, Appendix B). In addition, this site provides the security desired for a communications installation and a safe location for maintenance of the equipment.

According to BIBE law enforcement, illegal activities along the border have been on an upward trend over the last four years (See Appendix D). This installation would enhance coordination between various law enforcement agencies and would improve law enforcement response to illegal activities. Improvements in law enforcement capabilities would result in deterrence of illegal activities along the BIBE portion of the international border.

The proposed site is located near a State Archaeological Landmark (SAL). In accordance with ARPA, to the extent possible, the precise location and nature of this SAL will not be disclosed in this EA. In addition, mountain peaks are traditionally considered sacred places by American Indian peoples. No other known cultural resources are located at the proposed site.

The portion of the Rosillos Mountains where the project area is located was acquired by the National Park Service in 1989. This area was determined by the BIBE Superintendent to meet Suitability standards according to the Wilderness Act and NPS policies.

Generally, desert soils tend to be susceptible to disturbance and have the potential for significant erosion if disturbed. The rotor wash and compaction associated with the proposed installation would be considered a significant disturbance. Soil erosion can inhibit the viability of the soil for re-vegetation when the installation is removed.

No threatened or endangered species or their critical habitats are located at the proposed site. The proposed site is utilized by a variety of desert plants and wildlife.

Rosillo Peak receives few visitors per year due to the remoteness of the site and the difficulty of the hike. Visitors currently have unrestricted access to the peak. People tend to seek mountain peaks for the pristine conditions, expansive views and opportunities for meditation.

*Rationale for Further Consideration of Alternative:* The proposed action would provide more efficient communication for more effective law enforcement patrol of the associated portion of the international border. NPS and law enforcement response time to reported illegal activities would improve. The improved communications, which improve law enforcement capabilities, would deter illegal activities that would result in impacts to the health and safety of visitors and employees and in resource damage in BIBE.

The proposed action would also improve the safety of visitors and park employees in backcountry areas that currently have no radio coverage. The proposed action would improve NPS resource management operations in the suitable wilderness areas not currently covered by reliable communication.

A minimum requirement analysis was conducted for the proposed action. The analysis determined that the proposed action would be the minimum tool necessary to administer the suitable wilderness area.

The size of the installation is not expected to increase in the reasonably foreseeable future. The effectiveness and viability of the proposed repeater installation would be re-evaluated five years after implementation, if approved, because it is possible that technological improvements in communications could render the installation obsolete. At that time, a cost-benefit analysis would be conducted for the repeater to determine if the repeater is achieving the project objectives. Upon completion of this analysis, the repeater would either remain or be removed and the site restored.

## *Mitigation Measures*

Archeological: Mitigation would be conducted for the SAL to protect and preserve the site and the values associated with the resource. The NPS coordinated with the THC to develop a scope of work that would preserve the archeological resource from the impacts of the proposed action, if implemented.

Mitigation measures include detailed surface mapping, controlled collection of certain artifacts and their curation according to federal standards, and archeological test excavations to recover significant scientific data from archeological features on the site. These mitigation measures would be applied to the entire area of potential effect.

Ethnographic Resources: The Mescalero Apache Nation requested that avoidance of Rosillo Peak be considered as a mitigation measure for protection of the SAL and the repeater be placed at another location.

Soil Resources: In order to ensure the preservation of soil resources on the Peak, a soil tackifier would be added to the helicopter landing site and the proposed platform site. The NPS would use an organic soil tackifier, Con-Tak™, to stabilize the soil at these high disturbance areas. Con-Tak is a polyacrylamide (PAM) soil stabilizer. PAM stabilizers have been shown to effectively protect soils from erosion and facilitate vegetation establishment (Green and Stott, 2001).

Visual: The proposed installation would be visible from some parts of the surrounding desert. The installation would be painted to match the surrounding environment to mitigate the adverse visual effect.

## **2.2 Alternative B: Maintain Current Communications Capabilities (No action Alternative)**

Proposed Alternative: The no action alternative would involve maintaining the current communications capabilities. This alternative would not include the placement of an additional radio repeater on Rosillo Peak or any peak in BIBE or surrounding properties. The NPS, DHS and the FBI would continue to operate with the current communication capabilities of Emory Peak and Persimmon Gap.

Discussion: This alternative would have no direct environmental impacts. Rosillo Peak would remain in its pristine condition. No physical, economic, cultural, biological or social resources would be impacted on Rosillo Peak.

However, the no action alternative could have adverse impacts to the physical and biological resources of BIBE. The areas that currently have little to no radio coverage, areas southeast of Emory Peak and north of Rosillo Peak, would continue to have little to no radio coverage, which could have an adverse affect on the health and safety of resource managers, interpretive staff, volunteers and law enforcement personnel, who travel to these areas of the park. This alternative could limit the ability of law enforcement in deterring illegal activities that result in the degradation of natural resources.

The wilderness character of Rosillo Peak would not be adversely impacted by this alternative. However, the Rosillos Mountains suitable wilderness area would have no effective, reliable radio coverage for the administration of the area.

Rationale for Further Consideration of the Alternative: This alternative provides a basis of comparison for the preferred alternative. This alternative would result in no physical, cultural,

economic, biological or social environmental impacts on Rosillo Peak, but it could result in natural resource damage in other areas of the park due to the limitations of current communications capabilities. In addition, this alternative could contribute to a continued upward trend in illegal activities on the border, potentially compromising visitor and employee safety in the park.

## 2.3 Other Alternatives Considered and Dismissed

### Expansion of Current Emory Peak Radio Repeater Site

Proposed Alternative: The Emory Peak expansion would include the installation of an additional repeater within the current radio repeater site.

Discussion: The NPS currently maintains two radio repeaters on Emory Peak, in the Chisos Mountains. The current communications installation on Emory Peak is characterized by a single access trail with an approximate 60-foot rock face climb and sheer drops at the summit of the Peak. This trail is maintained, very popular, and allows the public free access to the peak and, subsequently, to the repeater site. The Emory Peak installation is located within an area officially excluded from wilderness.

Due to topography, this repeater site has a long history of "blind spots" and limited radio coverage. The health and safety of visitors and employees in backcountry areas is inhibited by the limitations of the Emory Peak site. Also, large areas of the northern portion of the park have no radio coverage, which includes the Rosillos Mountains with suitable wilderness areas.

In addition, according to NPS staff, visitors to the park have expressed disappointment at seeing the radio repeater installation on the peak, after achieving the strenuous hike. The antenna is currently painted blue to minimize the visual impact, but can still be seen from the Chisos Basin.

According to NPS staff, an extraordinarily rare plant occurs at the top of Emory Peak and in rock crevices at the radio repeater site. This plant received State listing in 2004 as an "S1" plant, and is "critically imperiled in Texas, and especially vulnerable to extirpation from the state." This is the only known population of this species in the United States.

Rationale for Elimination of the Alternative: The placement of the additional repeater at the installation would not achieve the purposes of the project, to reduce "blind spots", increase current radio coverage and improve communications capabilities of law enforcement agencies and NPS operations. Also, the topography of the peak creates hazardous conditions for maintenance activities. Maintenance activities include transportation of heavy, ungainly equipment to the summit via the public trail. In addition, helicopter transport of equipment is dangerous and difficult. Equipment transported by helicopter has been lost off the summit in the past. Heavy visitation to the peak and open access of the site to the public, does not achieve the security objective of the proposed project. The addition of more equipment at the peak could increase negative impacts to visitor experience at the peak. The expansion of the site would also increase the visual clutter on the peak.

According to NPS staff, the population of the rare plant at the peak is currently thriving. However, any changes to the area could adversely impact the habitat and cause it to be extirpated from the United States.

Based on the reasons cited above, the expansion of the current radio repeater installation at Emory Peak does not meet the objectives of the proposed action and could potentially have major adverse effects and lead to the impairment of park resources and values. This alternative was eliminated from detailed study.

## **Alternate Site Outside Park Boundaries**

Proposed Alternative: Find a location for the radio repeater outside of the boundaries of the park, on private land.

Discussion: This alternative would remove any impacts to park lands and prevent intrusion into lands managed as wilderness. Biophysical effects would be eliminated from park lands and transferred to private lands. Wilderness experiences would not be harmed unless the site was visible from portions of the park. Costs and timing utilizing this alternative may be less than other alternatives if a site could be located. If a site were located, leases and right of way arrangements would have to be made with private landowners. If a roadway exists to the site or if one could be put in, the expense of a helicopter to service a site would be eliminated. Once a lease or agreement for use of the site was in place, installation would be immediate.

Rationale for Elimination of the Alternative: There are no peaks on lands outside the park that provide the radio signal coverage strength and area that the Rosillo Peak site provides to all the agencies involved in the proposed project. At sites outside BIBE, the NPS and other law enforcement agencies lose radio coverage of areas that a Rosillo Peak facility would cover. The coverage maps produced from the radio coverage tests of peaks outside of park boundaries are not available for review.

The ability of the NPS to protect wilderness resources and values may be diminished by a communications system that does not provide optimum coverage. Health and safety of the public and government employees would be compromised by the installation of a system that does not maximize the coverage and quality of radio communications.

Political consequences include placement of another government facility on private lands and the associated security measures and concerns. Existing Memorandums of Understanding for combined communications with cooperating Federal agencies and the ability to continue to work together may be compromised by the placement of a communications facility that does not provide optimum coverage for all agencies. This alternative does not meet the need and objectives for the proposed action and is eliminated from detailed study.

**Table 2.1 Summary of Environmental Consequences of Alternatives**

<b>Resource Category</b>	<b>Resource</b>	<b>Alternative A (Preferred Alternative)</b>		<b>Alternative B (No Action Alternative)</b>	
<b>Context</b>		<b>Rosillo Peak</b>	<b>BIBE</b>	<b>Rosillo Peak</b>	<b>BIBE</b>
<b>Physical</b>	Soil	Minor Adverse Effect	Moderate Beneficial Effect	No Adverse Effect	Moderate Adverse Effect
	Visual	Moderate Adverse Effect	Minor Adverse Effect	No Adverse Effect	No Adverse Effect
	Archeological	Minor Adverse Effect	Minor Beneficial Effect	Minor Adverse Effect	Minor Adverse Effect
	Ethnographic	Moderate Adverse Effect	Negligible Adverse Effect	No Adverse Effect	Moderate Adverse Effect
	Wilderness	No Adverse Effect	Moderate Beneficial Effect	No Adverse Effect	Minor Adverse Effect
<b>Biological</b>	Vegetation	Negligible Adverse Effect	Minor Beneficial Effect	No Adverse Effect	Minor Adverse Effect
	Wildlife	Negligible Adverse Effect	Moderate Beneficial Effect	No Adverse Effect	Minor Adverse Effect
	Threatened and Endangered Species	Negligible Adverse Effect	Moderate Beneficial Effect	No Adverse Effect	Moderate Adverse Effect
<b>Social and Economic</b>	Health and Safety	Minor Beneficial Effect	Moderate Beneficial Effect	No Adverse Effect	No Adverse Effect
	Recreational Opportunities and Experience	Moderate Adverse Effect	Minor Beneficial Effect	No Adverse Effect	Minor Adverse Effect

**Rosillo Peak** – the helicopter landing site, the foot traffic corridor, the platform site and immediately adjacent areas

**BIBE** – the natural and cultural resources located within park boundaries

Because definitions of intensity (negligible, minor, moderate, or major) vary by impact topic, intensity definitions are provided separately for each impact topic analyzed in this environmental assessment. See Chapter 4 for detailed descriptions of intensity definitions.